



**PRODUCE ORGANIC IN ENTRE DEUX MERS :
LIGHTING BY COSTS AND ECONOMIC PERFORMANCE**

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INTRODUCTION

Often mentioned in discussions about organic wine, the concept of costs and economic performance is often subject to various interpretations. Sometimes in the sense of a benefit for the bio, sometimes in that little easy to overcome disabilities. Conducted reasonings do not always rely on examples encrypted, always difficult to make meaningful comparisons. The purpose of this article is just to bring an additional stone to this building, presenting the results of a survey conducted end of 2013 with a sample of wineries and conventional growers (7 farms) organic growers (8 estates). The small size of the sample probably does not allow to generalize the results, but however provides useful information for the lighting of a topical issue on the selection of a mode of production.

The 15 farms, which we will present to you the results, are all in the region Entre-Deux-Mers and produce in majority Bordeaux and Bordeaux supérieur. The data on which we have worked are mainly from the 2012 financial year. The high observable intra-sample variability in the range of 1 to 2 on costs of returns and 1 to 3 on sale prices is in line with the high variability that we could meet on a larger sample. In addition, for our analysis up performance, this variability on costs or prices do gene nothing interpretation of the extent of the final performance.

The method used to calculate the costs is the full costs (ABC) method, incorporating all of the factors of production costs, including the remuneration of family labour and capital (land and financial) when these are made available and not registered in accounting.

1 - SAMPLE AND METHODOLOGY USED

To better understand the analysis of the results, let's look at the characteristics of these 2 groups:

Technically, there are some **sharp differences between the 2 groups** criteria that will push to use the comparison. This is the case for the following indicators:

- **The area in production average is lower on the Bio group** with an average of 24 ha against 51 ha on average for the operations of the group. There is however a high variability of production surfaces whatever the study group.

-One **much lower average yield over 5 years in the Bio group**. The average yield between 2008-2012 in the bio is of **44.73 hl/ha** with gaps included between 38 and 53.5 hl/ha. In conventional, performance between 2007-2011 is of **54.48 hl/ha**, with smaller gaps between 44.5 and 59 hl/ha.

(¹) With the participation of the students of the master vineyard Manager (2013-2014), Bordeaux sciences Agro in partnership with AAGestion (Association of management and accounting - Gradignan).

Commercially, we observed:

- **Medium volume marketed on the Bio group much weaker**, with an average, all packaging confused, 1103 hl including 60 per cent are marketed in bottles, an average of 88 420 bottles on the 2012 financial year. These bottles are valued for 14% with individual customers. Only half of farmers markets in bulk for an average volume of 751 Hl.

For the conventional Group, we find an average of 2685 hl total marketed volume of which only 40% are marketed in bottles, which averages about 142 100 bottles sold in fiscal year 2012. 17% of these bottles go on direct sales. 6 holdings on 7 sell in bulk for an average volume of 1864 Hl.

However taken from another angle, some **criteria are much more homogeneous** :

On the technical side:

-The **planting densities differ little from one group to another**, with an average around 3 660 plants/ha (3 575 feet/ha conventional and 3 730 feet/ha organic) and gap ranging from 4 225 at 5 250 plants/ha.

- **A average productivity of the wine by AWU (Annual Work Unit) very close**. Considering that a unit of work schedule (UTH) is equivalent to one person full-time to the 35-hour work, or 1 600 h/year. On the Bio group, is on average 13.37 ha against 12.39 ha for the conventional group. This criterion also observed an **variability** regardless of the group.

- **Almost all of winemakers use barrels** in proportions less than 26% of the volume vinified for the majority.

Commercially, many criteria are identical regardless of the studied group:

-**Business strategies**, although diversified according to the studied farms, do not differ from one group to another (table 1)

Table 1: Comparison of business strategies practiced according to the studied groups - study E2M 2013-2014

Type of policy compared with the total volume traded	Bio group	Group conventional
Strategy bulk (vol. bulk > 66%)	2 farms	3 farms
Strategy BT (BT > 88% vol.)	3 farms	2 farms
Mixed strategy (vol. bulk ~ 55%)	2 farms	2 farms
Strategy BIB (BIB > 68% vol.)	1 operation	

-It is same for **the commercial circuits** , which are evenly distributed similar (table 2).

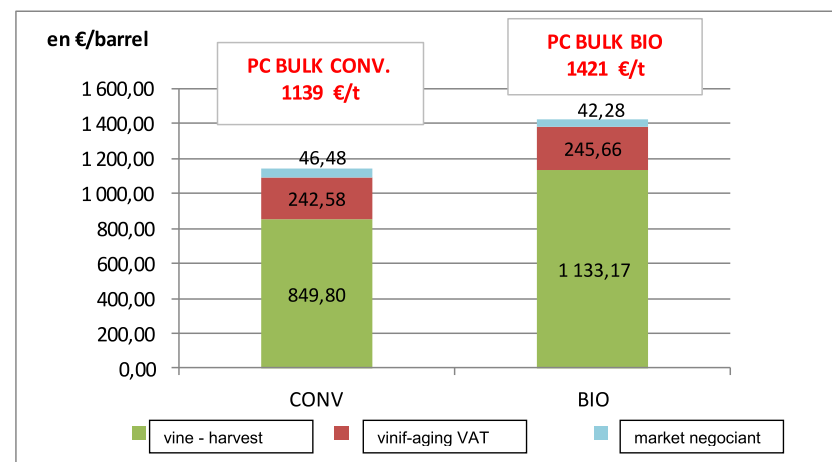
Table 2: comparison of the practical commercial circuits on the basis of the groups studied - study E2M 2013 - 2014

Type of Circuit relative to the total marketed	Bio group	Group conventional
Circuit oriented negociant (trading > 53% vol.)	4 farms	5 farms
Circuit oriented export (export > 85% vol.)	1 operation	1 operation
Individual customer circuit (vol. > 50%)	1 operation	1 operation
Mix of circuits	2 farms	

-The **high variability of the marketed volumes** regardless of the study group calls for a holistic study rather than comparative indicators related to the commercial. Observed differences ranging from 1 to 9.6 on the Bio group, with volumes marketed ranging from 283 to 2 713 hl. On the conventional group, differences are even more important, they range from 1 to 147 with sales ranging from 32 to 4 703 Hl volumes.

2 - COSTS ARE HIGHER IN ORGANIC VITICULTURE

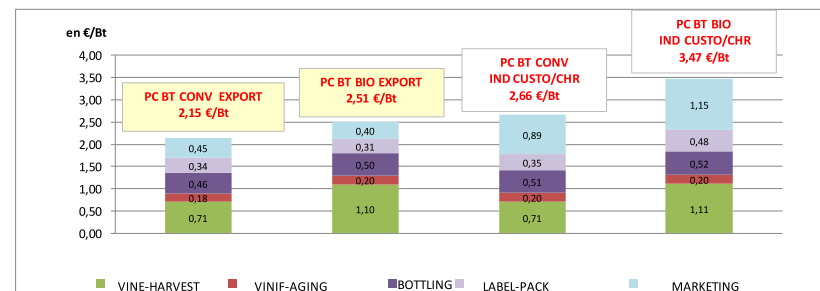
If we look at the two main products sold (bulk, bottle), costs are always higher in organic viticulture.



Source: Study E2M 2013-2014, Bordeaux science Agro - AAG

Figure 1: Comparison of the costs of returns of bulk

Reduced to the barrel, **the cost of average cost of bulk** (Figure 1) in the bio is €1 421 /Tonneau. It is superior to that of conventional by almost 25% or €282 tumbling. Knowing that in conventional or organic, driving ¾ of the cost of returns to a minimum, consists of production activities (vine-harvest), it is logical that **the substance of the difference in cost between a bulk organic and a conventional bulk is explained by a difference in cost on the vine-harvest activity.**



Source: Study E2M 2013-2014, Bordeaux science Agro - AAG

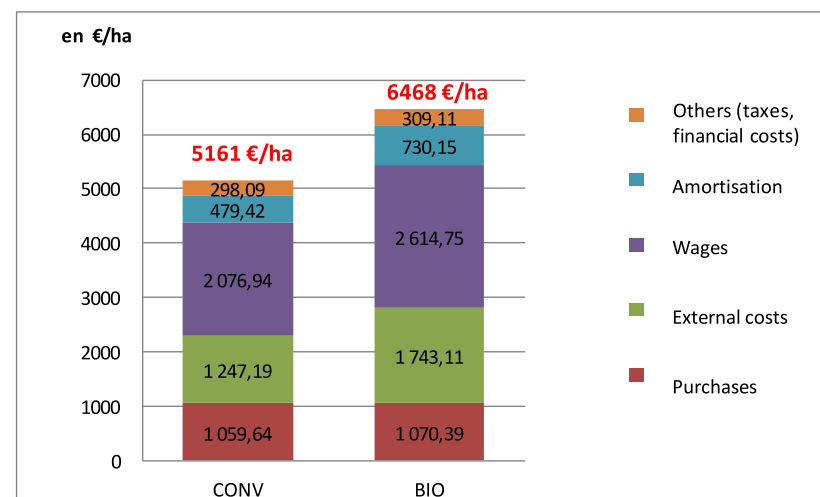
Figure 2: Comparison of costs of returns from the bottle

The cost of average bottle cost (Figure 2) in the bio is higher regardless of the circuit used. On the special circuit - Cafe - Hotel - Restaurant (CHR), the cost of a bottle is €3.47. It is almost 1/3 higher than conventional or 81 cents more in the bottle. On the export, it is € 2.51 / Bt, higher than that of conventional by almost 17% or 36 cents more in the bottle.

The difference in cost between a Bio bottle and a conventional bottle is explained by a combination of factors : as for the bulk, the higher cost of production activities in biological conduct remains the predominant explanatory factor, but not only. On the individuals-CHR circuit, there is also particularly an increase in marketing costs in organic farms as well as higher packaging costs. **Explain these trends perhaps by a larger organic farms differentiation approach ?**

Let's see more discriminatory activities.

21 - Analysis of the vine (+ 25% organic) activity:



Source: Study E2M 2013-2014, Bordeaux science Agro - AAG

Figure 3: Comparison of the costs of the vine-harvest activity

The bio vine-harvest cost is 6 468 € / Ha (Figure 3). It is 25% higher than conventional or 1307 € more per hectare. Its variability is more important on the driving biological sample, the cost of the vine harvest activity varies from 4 228 to 7 €897 / Ha is a variability of 1.87 against variability of 1.38 on conventional sample where there costs vine-harvest ranging from 4 377 € and 6 028 € /Ha.

Bio higher Costs of wages around 538€/Ha, due to the harvest mode:

Whatever the production mode is, the first post of charges consists of wages, which represent, in our samples, 40% of the cost of the activity. Yet their level differs depending on the production mode : for conventional, wages are on average 2 077 €/ ha, varying from 1 563 € to 2 332 /ha, against 2 615 € / Ha in bio where there is a gap between much larger holdings of 1 315 to 3 641 € /Ha.

This difference highlights the impact of manual harvests on the cost. Indeed, even if the majority of farms (12/15) practice exclusively mechanical harvesting, some resorted to Manual harvesting on part of their vineyard. These farms belong exclusively to the bio group, where 3 of them resorted to manual harvest, on average, 17% of their area. Their cost is so impacted. These farms have all vine-harvest costs over 7 000 €/ ha, the highest of the study group. The level of staff on these farms is important and wages are around 3 400 €/Ha.

If comparing two groups with only an exclusively mechanical harvest holdings, personnel costs are at the same level (2 140 €/ Ha in the bio and 2 136 €/ha in conventional). This small range is the result of the combination of several factors that compensate themselves: density of slightly higher planting on the bio group certainly entails higher costs but the greater productivity on the vine-harvest of this group activity allows to compensate. Note that the level of the work by third parties, may in part be equated to the workmanship on these production activities, is higher in bio line: 357 €/Ha on average compared to 261 €/Ha conventional. In any case, it is difficult to assess the impact in terms of costs of differences in technical routes between the two production modes here. In our sample, it seems that labor costs are not a major cost difference source.

High third party in the bio of the order of 496 €/Ha:

Whatever the production mode is, third party are the second post of costs. They represent for the bio group, 27% of the grape-harvesting cost for a medium amount of 1 743 €/Ha. Strong differences also occur between estates, ranging from 1 to 2.25 between the lowest value 1 126 €/Ha and the highest 2 539 €/Ha.

The conventional sample has external loads representing 24% of the cost for an amount of 1 247 € /Ha from 831 € /Ha and 1 537 €/ ha.

These differences are explained mainly by charges of maintenance of equipment more high in bio (+89 €/ha), resulting in perhaps a more intensive equipment use especially during maintenance of the soil... and most important professional contribution (+56 €/Ha on average) related bio specificity (contributions Ecocert and bio Union).

Higher depreciation in the bio of the order of 251 € /Ha.

Weaker purchases in the bio of the order of 88 € /Ha :

Purchases, third post of charges fall to 21% in the cost of the activity vine-harvest on the conventional sample versus 15% for the organic group. On average, the latter spends less fertilizer and plant protection products (-200 €/ha) but more fuel products (+75 €/ ha), which conforms to their specifications.

Influence of yield :

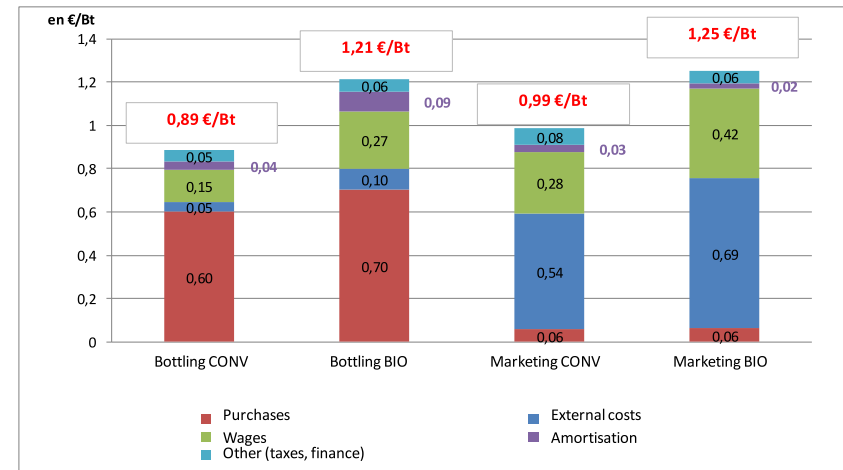
The average yield over 5 years is lower on driving organic farms. It is on average of 44.7 Hl/ha for the period 2008-2012, with differences ranging from 37.9 to 53.5 hl/ha. On conventional farms, the average yield on 5-years (2007-2011) is 54.5 hl/ha with a variation ranging from 44.5 to 58.8 hl/ha.

This gap of 10 hl/ha of course has an impact which adds to the cost per ha and occurs at the level of the cost of returned products marketed.

Thus, observed on the bottle a difference in cost of the activity vine-harvest of almost 57% between the two production modes, meaning an additional gap of more than 30% compared to that observed by ha.

Our sample therefore highlights a superiority of cost vine-harvest bio both as per hectolitre as per hectare. This difference has mainly two origins: external loads and higher labor costs, related to the practice of manual harvesting. These gaps are widening when it brings the cost of the activity standard following the impact of the lower yield of farms in organic production mode.

22 - Analysis of packaging (+ 36% for organic) and marketing charges linked to the sale in bottles to individuals or CHR (+ 27% for organic):



Source : Etude E2M 2013-2014, Bordeaux Sciences Agro - AAG

Source: Study E2M 2013-2014, Bordeaux science Agro - AAG

Figure 4: Comparison of the costs of packaging and marketing bottle individuals-CHR activities

The cost of the packaging activity (bottling + labelling) in the bio is 1.21 €/bt. It is higher than that of conventional 36%, this means 0.32 euros more per bottle (Figure 4).

Higher purchases at the bio of the order of 10 cents per bottle:

Whatever the production mode is, the first post of charges consists of purchases which 89% correspond to the supplies of dry materials.

Wages higher in the bio of the order of 12 euro cents per bottle:

Whatever the production mode is, labor costs constitute the second position of loads, which more than 53% correspond to the remuneration of family labor.

These differences among sample, both at the level of personal expenses that position purchases, are certainly explained partly by the difference in volume conditioning between the bio sample (92 000 bt on average) and the conventional Group (150 000 bt on average). However this argument must be qualified because he has not always direct correlation between the level of cost and volume labeled.

Other reasons do explain these differences: marketing choices, highlighting the increased interest of differentiation in organic, is certainly the main. However, it should not exclude differences in management during the negotiation of the supply.

The bio cost of the marketing to individuals or CHR bottle is 1.25 €/bt (Figure 4). It is higher than that of conventional 27% or 0.26 €/bt. Cost differences are less important on the sample in organic mode. They vary from 0.67 to 1.68 €/Bt, a variability of 2.53, against 3.23 on conventional sample where marketing costs are ranging from 0.52 to 1.67 €/bt.

These are external loads (+ 15 cents focused on costs of fairs, advertising, reception, travel, mission, commission, and transport of goods.) and staff costs related to the time spent by the family workforce on this activity (+ 14 cents), which are the main cause of this discrepancy.

Our sample is therefore characterized by a difference of cost between organic and conventional growers. The packaging and marketing are the most concerned activities. The vine-harvest activity is also mainly due to the impact of the yield.

If all the costs in organic viticulture seems higher, it should be watching the performance that follows, to find out if this extra cost is absorbed by the commercial activity.

3 - A COMPARABLE TRADE PERFORMANCE

As the marketing arrangements are nearby (see tables 1 and 2, products and circuits used), registered commercial efforts are also similar in labor devoted to marketing (0.54 and 0.57 AWU per year). The bio group holdings however faces to a little more commercial efforts since this level of labor represents 14% of the total wages compared to 8% for the conventional group. This is consistent with differences in costs observed between the two groups.

Concerning the diversity of the marketed range, 16 different products on average (non-vintage) are marketed on farms of the two groups. This diversity, however, is that relative because in 2 groups, only 4 products on average allows the achievement of 75% of the turnover of the year.

Similarly, the dispersion medium products marketed on the different circuits is very close (table 3).

Table 3: comparison of the ranges by circuit and mode of production - study E2M 2013 - 2014

	GROUP CONVENTIONAL		BIO GROUP	
	Average number of products sold	Number of holdings	Average number of products sold	Number of holdings
Negociant	3.86	6	2.25	6
Supermarket or / and central purchasing	1.86	3	1.88	3
CHR - wine merchants	4.14	5	7.88	7
Individual Customers	9.43	7	9.75	8
Export	7.14	4	7.38	4

It is to individual customers that is sold the most diversified range, on average 9 to 10 products different, while in trading, only 2 to 3 different products are marketed.

The share of marketing costs in the selling price is very different depending on the circuit used (table 4).

Table 4: comparison of the commercial circuit weight - Study E2M 2013-2014

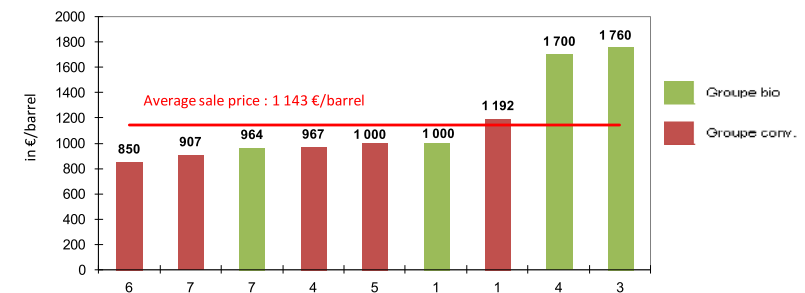
CIRCUITS SHOPPING	GROUP CONVENTIONAL			BIO GROUP		
	Economic Marketing Cost	Average sale price	Commercial weight	Economic Marketing Cost	Average sale price	Commercial weight
Negociant France	5.16 €/HL	134,64 €/HL	3.84%	11.64 €/HL	224.37 €/HL	4.44%
Individuals - CHR - wine merchants	127,84 €/HL	458,62 €/HL	27.88%	167,73 €/HL	467,80 €/HL	38.66%
Export	78.71 €/HL	307.06 €/HL	25,63%	53.20€/HL	360.00 €/HL	14.97%

Source: Study E2M 2014, Bordeaux science Agro - AAG

On individuals - CHR - wine merchants and negociant circuits, the share of marketing costs in the average selling price is more important on the bio group, while the reverse is true for export. This commercial effort may explain the better recovery observed in the bio of the order of 30 cents per bottle for all products on the individual-CHR-merchant circuit and of the order of 90 €/hl on the negociant circuit.

Observed prices of wine in bulk are highly variable from one holding to another (Figure 5). Deviations in the order of 40% on the farms of the conventional group are observed. They are 82% on organic sample. This shows that there is room for manoeuvre more important than what one might think at first glance towards the commercialization of this type of strongly dependent product of a market price. Note that only half of the farms in organic mode seems to take advantage of their specificity in terms of valuation.

Average sale price Red Bordeaux in bulk

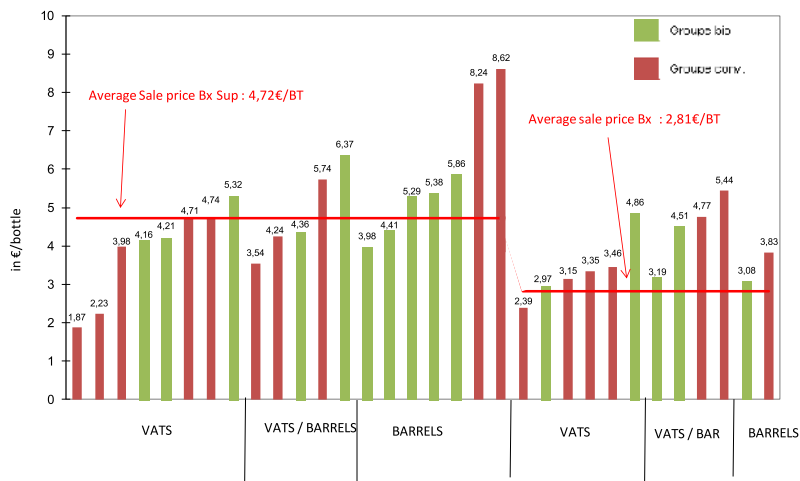


Source: Study E2M 2013-2014, Bordeaux science Agro - AAG

Figure 5: Average selling price of bulk

For sale in bottle to individuals (Figure 6), there is even more important differences, from 1 to 2.8 for the Bordeaux supérieur through Vat, 3.45 €/bt, of 1 to 1.8 for the Bordeaux supérieur based of a tub-barrel Assembly either 2.83 €/bt and 1 to 2.17 for the Bordeaux supérieur derived from 100% barrel production or 4.64 €/bt. Bio specificity is characterized thus not always by a higher valuation, but remains superior in general average.

AVERAGE SALE PRICED RED BORDEAUX IN BOTTLE FOR INDIVIDUAL CUSTOMERS



Source: Study E2M 2013-2014, Bordeaux science Agro - AAG

Figure 6: Average selling price in particular bottle

The differences are equally important in red Bordeaux, of the order of 1 to 2 for Vat, 2.47 €/bt, from 1 to 1.7 for products derived from an Assembly tank-barrel, 2.25 €/bt.

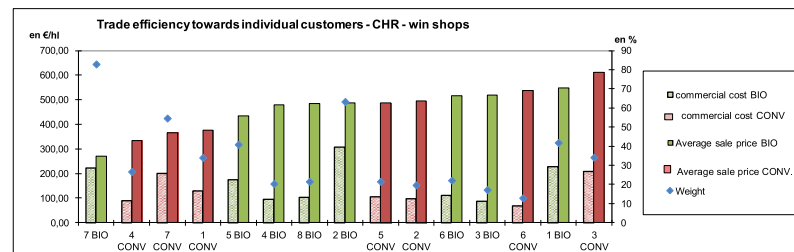
Note that upgrading in barrel on some farms produces lower prices than other ways. Similarly, on the product Bordeaux, the Assembly is better valued than the product 100% Barrique. Margins of maneuver are certainly possible.

However, when one knows the cost of rearing barrel in the cost of returns from the bottle (approximately 40 € cents per bt), reveals that on average this cost is largely covered by the most important valuation performed on this product.

Note that on this appellation, bio products have all of above-average sales prices.

However the observation of that share of trade costs in the average price of sale, for all products, by operating on the circuit individuals-CHR (Figure 7) shows that bio specificity does not always allow for clear better utilization compared to the conventional farms (ex: No. 3 conv). In addition, a high level of marketing costs do not necessarily translates better utilization of the product (ex: n° bio 7, n° 7 conv, n° 5 bio, n° 2 bio).

Figure 8 : Trade weight in bottle sales for individual customers/CHR

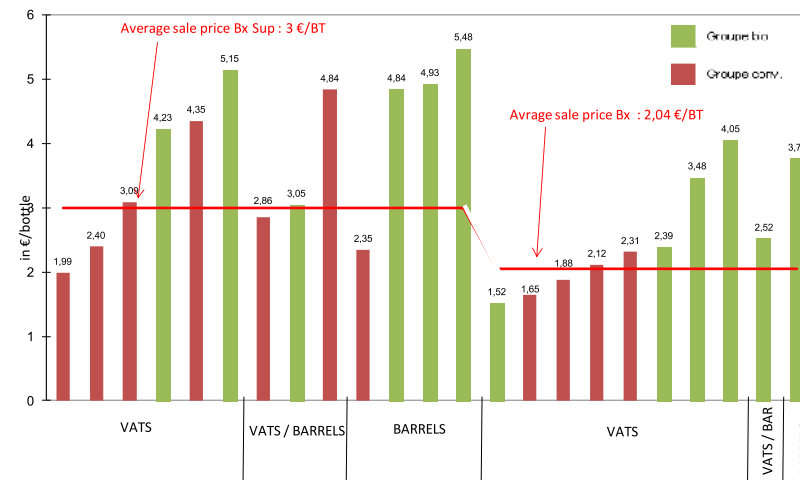


Source: Study E2M 2013-2014, Bordeaux science Agro - AAG

Figure 8: Trade weight in the individual/CHR bottle sale

On the sale in the bottle for export (Figure 8), observed identical deviations of the order of 1 to 2.6 for Bx sup high tank € 2.59 / BT, 1 to 1.7 for Bx from sup of a tub-barrel Assembly is € 1.98/BT and 1 to 2.33 for Bx from sup of breeding 100% B € 3.13 /BT. However bio specificity abroad seems to be better valued compared to the previous circuit.

AVERAGE SALE PRICE RED BORDEAUX IN BOTTLE EXPORT



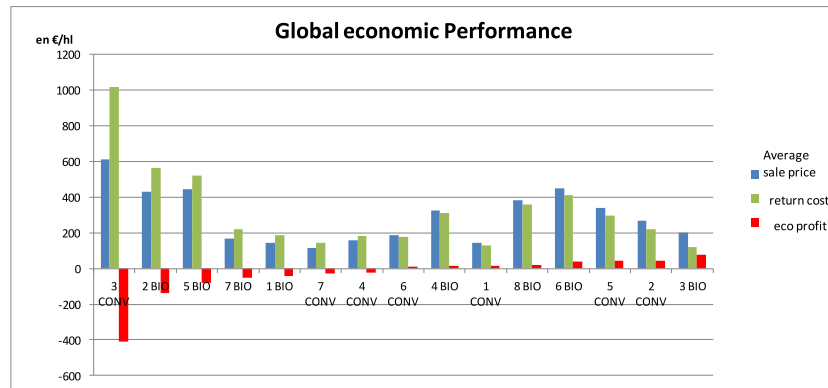
Source: Study E2M 2013-2014, Bordeaux science Agro - AAG

Figure 9 : Average selling price of the bottle for export

Bio specificity does therefore not on our sample of significant marketing, advantage even if sales prices seem to be in the majority of the upper case. See how this translates to the level of overall economic performance.

4 - ECONOMIC EQUIVALENT PERFORMANCE

Whether it's organic or conventional group, half of the studied farms (Figure 9) have a beneficial result (4 bio, 4 conventional). Therefore, there is no difference in performance between the 2 groups. Half of the businesses is unable to generate profit (11).

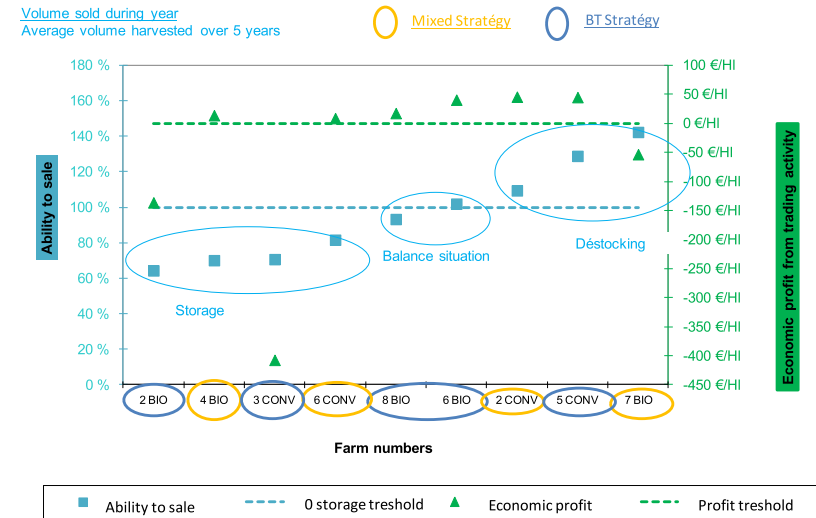


Source: Study E2M 2013-2014, Bordeaux science Agro - AAG

Figure 10: Overall economic Performance

Farms generating the best valuations in terms of average selling price do not always have the best performance: n° 3 conv, no. 2 and no. 5 bio. The adequacy of cost - price remains a guarantee of performance, and control of costs remains therefore a necessity to ensure a result in many situations. Best selling organic prices therefore compensate higher costs, which explains that despite higher costs, the performance is comparable between the two modes, on our sample.

One of the performance criteria is also based on the ability to sell enough production. The majority of holdings with a bottle strategy or joint had tend to store their production strategies bulk and BIB. However, this storage does not allow several companies to generate the result on its sales. This is the case of 3 farms on the 5 that store, like 2 organic farms and 3 conv. presented in Figure 10. Conversely, 7 farms were paid (mostly strategies bulk). However, they did so in good conditions, allowing them to generate the result (ex: n° 2 and n° 5 conv), sign of improvement of the context from previous years.



Source: Study E2M 2013-2014, Bordeaux science Agro - AAG

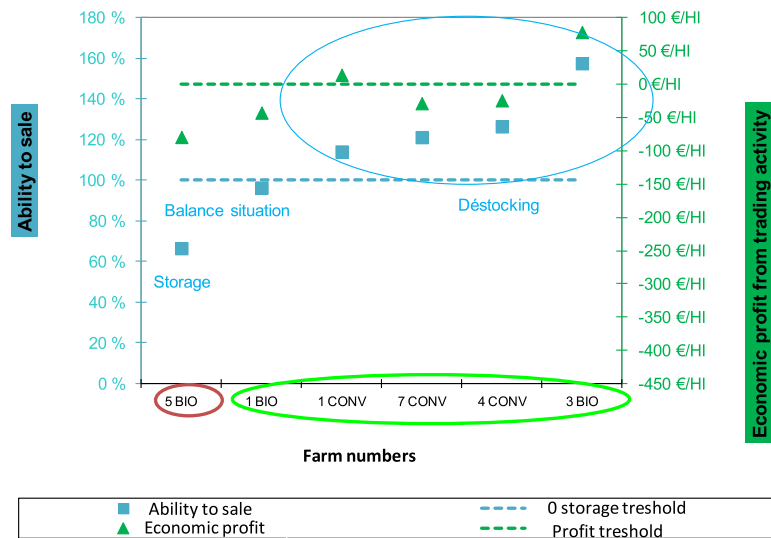
Figure 11: Ability to sell and profit economic strategies BT and joint

On circuit performance and conditioning, the results are also shared. The bulk (Figure 11) sold in bio on our sample generates a better result for an average cost of approximately the same. The price variable thus explains this best bet, because of the prices at which farms 4 and 3 bio sell their bulk.

Volume sold during year
Average volume harvested over 5 years

○ Bulk Strategy

○ BIB Strategy

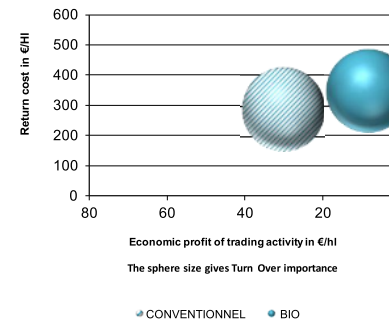


Source: Study E2M 2013-2014, Bordeaux science Agro - AAG

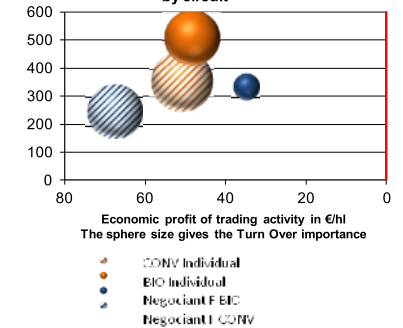
Figure 12: Comparison of the trade performance of bulk

For sales of bottle for export (Figure 12), they represent a CA in our sample whatever the mode of conduct. The bio Group's performance, while beneficial, is lower than that of the conventional group. Yet the average sale price of the bottle bio for export is more student (€2.69 / BT compared with € 2.39/BT conventional). The lower level of the bio Group's performance is essentially explained by the variable cost (higher in bio € 2.62/BT compared with € 2.17/BT for the conventional).

Comparison of trade performance BT Export



Comparison of trade performance BT by circuit



Source: Study E2M 2013-2014, Bordeaux science Agro - AAG

Figure 13: Comparison of the trade performance of the bottle

Sales to consumers (Figure 12) generate a profit very close regardless of the group studied. And bottle sold to negociants are also largely beneficiaries but with a strong difference between the performance of the conventional group and that bio group, favorable to the conventional group.

We therefore realizes that according to circuits, performance changes from one group to the other, without showing clearly the superiority of a production mode.

CONCLUSION

To conclude, we therefore retain our study organic growers in our sample produced with higher costs of 25-30% compared to conventional growers. And this as well in the production of grape to packaging and marketing. Trade performance does not distinguish the two groups, the selling price higher bio typically accompanied by higher trading costs. No more comprehensive, positive performance for the half of businesses without a group differs. Produce organic, through these figures, is not a guarantee for results positive and greater than the conventional. But this is not an impasse leading to a lesser performance. It should be remembered that the economic dimension cannot alone summarize the differences between these two modes of production, environmental and social dimensions are, also, to take into account to have a more complete opinion.

((^[1]) the calculated here economic result supports 'proxy' expense account, the operator labor, compensation for land and capital, beyond only accounting

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